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AUTHOR Anderson, Carolyn C.; Koenke, Karl
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ABSTRACT

A study was undertaken to create and validate a diagnostic, task-based Informal Reading Readiness Inventory (IRRI). IRRI subtests were created to reflect four areas found to be important in reading readiness: awareness of self and media, language experience, reasoning, and phonics. Prereading curriculum components formed the basis for test item selection and hence provide the teacher functional information concerning demonstrated student achievement. The IRRI can be administered individually in less than 20 minutes or in two time blocks: ten minutes small group/ten minutes individual. Forty students were selected from five first grades in two central Illinois schools to take the test in September 1978. A stratified random sampling procedure, based on school, ethnicity, and sex was used to select students whose scores on the Peabody Picture Vocabulary test ranged from 90 to 110. In May 1979, 36 students were tested using the California Achievement Test (CAT). IRRI scores significantly correlated with reading achievement scores on the CAT and no significant difference in group means for sex, school, or ethnicity was found. The Informal Reading Readiness Inventory appears to be a highly significant predictor of first grade reading achievement for mid-IQ students. (MKM)

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An Informal Reading Readiness Inventory: A Diagnostic Method of Predicting First Grade Reading Achievement

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Carolyn C. Anderson, M.S.
Karl Koenke, Ph.D.

University of Illinois
Department of Early Childhood and Elementary Education
Urbana, Illinois 61801

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An Informal Reading Readiness Inventory:
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The projection of the informal reading inventory to the area of reading readiness has been neglected. That is, the actual materials used and activities practiced in the classroom generally have not been included in a device for measuring reading readiness. The creation of a diagnostic measure based on observation and theoretical analysis and supported by empirical data could provide a conceptual framework for determining reading readiness (Katz, 1977). The development of an informal reading readiness inventory (IRRI) predictive of first grade reading achievement is the focus for this study.

Rationale: Three major issues affecting reading readiness measures appear to be: 1) content selection, 2) implementation, and 3) interpretation of test results. When predicting reading readiness, instructional methods and curriculum content must be a priori considerations (Venezky, 1974). Experts tend to disagree as to the most opportune moment for beginning reading instruction. The debate centers on the importance of mental maturity and experiential background. Previous reading readiness tests have yielded unpredicted variance between 50% -80%, indicating research to date has not conclusively defined the domain (Thorndyke, 1977). When and where a test is given, group size and tester-student rapport may result in misleading or inconsistent results. Interpretation of test scores tends to be difficult when information is restricted to a single

score, stanine or grade level. Diagnostic instruments which provide the teacher with an interpretation of multiple scores permit the application of teaching technology to further student progress and assist in overcoming skill deficits (Engleman, 1967; Hildreth, 1969; Honig, 1975).

Instrument Design: Current reading readiness literature substantiates a domain division consisting of four categories: A) Awareness of Self and Media, B) Language Experience, C) Reasoning, and D) Phonics. (See Table 1 for theoretical support.) IRRI sub-tests were thus created to reflect each of these categories. Pre-reading curriculum components formed the basis for test item selection and hence provide the teacher functional information concerning demonstrated student achievement. The IRRI can be individually administered in less than 20 minutes or in two time blocks: 10 minutes small group/10 minutes individual.

(See Table 1)

Method: Forty students from five first grade classrooms in two schools (1 low SES, 1 middle SES-determined by the Duncan Scale 1977) in central Illinois, were selected by a random stratified sampling procedure. The population was restricted to students with pre-test scores of 90 - 100 on the Peabody Picture Vocabulary Test (PPVT), a receptive vocabulary IQ test, given the first week in September. During the second week, students were individually tested using the IRRI. In May 1979, the California Achievement Test: Reading, level 1.5-1.2 (CAT) was administered

to 36 students remaining in the school district to determine reading achievement.

Hypotheses:

1. A significant positive correlation exists between students' first grade reading achievement scores measured by the CAT.
2. There will be a significant difference between IRRI scores for girls and boys.
3. There will be a significant difference between IRRI scores from the low SES school and the middle SES school.
4. There will be a significant difference between IRRI scores for minority and non-minority students.

Results: IRRI data were analyzed by SPSS subprograms: "Regression," "T-Test," Pearson Corr," and "Reliability." A review of the data processed through "Regression," partialling out intelligence pre-test scores, indicated a significant positive correlation between the IRRI and reading achievement measured on the CAT ($r=.67$, $r^2=.44$, p .001). Random stratified sampling permitted the IRRI data to be examined for sex and cultural bias by a t-test comparison of group means. A review of the results reflected no significant difference in mean scores for sex (df 38, $p > .05$), school (df 38, $p > .05$), or minority (df 38, $p > .05$).

Other findings: Inter-correlations provided by the "Pearson Corr" sub-program were examined for significance. The CAT significantly

correlated with Part B(r=.28, $p < .05$), Part C (r=.55, $p < .01$), and Part D (r=.65, $p < .01$). Further investigation revealed a significant positive correlation between Part C and IQ (r=.33, $p < .05$) and between Part A and Part B (r=.38, $p < .01$) as well as between Part C and Part D (r=.41, $p < .01$). Means and standard deviations are provided in Table 2.

After IRRI sub-test correlations were corrected for part-whole bias, significance was found between the IRRI and Part B (r=.35, $p < .05$) and Part D (r=.27, $p < .05$), with judgment being reserved on Part C (r=26).

(See Table 2)

Statistical procedures are not yet adequate to process reliability estimates for criterion referenced measures as they tend to underestimate the reliability of the instrument (Wamsley, 1978). With this fact in mind, an estimate of reliability based on internal consistency was derived through the use of Coefficient Alpha. (See Table 3.) Coefficients, which include zero variance items, are provided for individual sub-tests. The reader is cautioned to note the number of items in each sub-test as a limited number of items tends to deflate the coefficient. Since a significant correlation existed between subtests A and B as well as between Subtests C and D, Alpha coefficients were determined for each test half. (AB=.52, CD=.93) Despite a nonsignificant Pearson Product Moment correlation between test halves, a .89 overall estimate of reliability was achieved for the IRRI.

(See Table 3.)

Conclusions and Discussion: The strength of the IRRI is found in its ability to discriminate among students of average intelligence. Reading readiness tests currently marketed have the ability to discriminate among extreme scores but tend to be limited or unsubstantiated in their ability to predict reading achievement within $\pm$ 1 standard deviation (Moses, 1977).

Content validity was substantiated by the significant strength of the sub-test correlations in determining the total IRRI score and in predicting first grade reading achievement. A curriculum-centered skills test, the IRRI has inherent face validity.

Priority design criteria which considered teacher time constraints and limited student attention span (10-15 minutes) were met by maintaining test brevity, ease of implementation and interpretation.

Further research is indicated over a cross-section of the kindergarten and first grade population to expand the applicability of the IRRI and establish inter-rater reliability. Test-retest reliability over time has yet to be considered as well. Testing at the pre-school level is necessary to confirm a possible ceiling effect on Part A.

TABLE 1

Theoretical Support for IRRI Sub-tests

Part A Awareness: Self, Media	Part B Language Experience	Part C Reasoning	Part D Phonics
Durkin (1974)	Hillerich (1977)	Lesiak (1977)	Lesiak (1977)
Harris (1973)	Moe/Rush (1977)	DeMao (1976)	Venezky (1970)
Piaget (1969)	Loban (1972)	Nevius (1976)	Hillerich (1969)
Brecenridge/Vincent (1965)	Palermo/Malfese (1972)	Venezky (1970)	
	Caldwell/Hall (1969)	Piaget (1969)	
		Pratt (1964)	

TABLE 2

Means and Standard Deviations for the IRRI, CAT and PPVT

Variable	N of Cases	Mean	Standard Deviation
PPVT	36	102.638	6.279
IRRI	36	60.444	6.212
Part A	36	26.250	2.611
Part B	36	9.027	2.873
Part C	36	9.666	1.956
Part D	36	15.444	2.869
CAT	36	83.416	15.869

TABLE 3

Coefficient Alpha Estimate of Reliability for the IRRI

Subtest	Number of Cases	Number of Items	Coefficient* Alpha
A	40	35	.53
B	40	3	.38
C	40	11	.45
D	40	60	.94
AB	40	38	.52
CD	40	71	.93
ABCD	40	109	.89

*Includes zero variance items

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